

Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Thus, claim 1 has been amended to incorporate the subject matter of claim 3, as a result of which claim 3 has been cancelled.

Claims 7 and 9 have also been cancelled since they are directly or indirectly dependent on claim 3.

Applicants respectfully submit that these amendments should be entered even though they are being submitted after a final rejection. The effect of the amendments is to limit the claims to the subject matter of claim 3, which has already been considered/examined by the Examiner. Therefore, entry of the amendments will not require any further consideration and/or search of the prior art.

The patentability of the presently claimed invention over the disclosure of the reference relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Initially, the rejection of claims 1-2, 4-6 and 8 under 35 U.S.C. §102(b) as being anticipated by Bringe has been rendered moot in view of the claim amendments. That is, claim 3, which is not subject to this rejection, has been incorporated into claim 1.

The rejection of claims 3, 7 and 9 under 35 U.S.C. §103(a) as being unpatentable over Bringe is respectfully traversed.

Bringe (US 6,171,640) discloses that soybean protein having a high β -conglycinin content is precipitated at **pH 4.5** and treated at **45°C** for 30 minutes (column 23, lines 59-61). Further, Bringe discloses that this soybean protein having a high β -conglycinin content is adjusted to **pH 7.2** and then heated at **72°C or 90°C** (column 24, lines 6-11).

That is, the temperatures of 72°C and 90°C in Bringe are associated with a pH of 7.2, which is certainly not treatment under acidic conditions. The temperature used in the reference under acidic conditions (pH 4.5) is 45°C, which is well below the lower limit (higher than 75°C) in the present invention. In other words, there is no disclosure in the reference of heating the soybean protein having a high β -conglycinin content at 72°C or 90°C **under acidic conditions**.

The Examiner acknowledges that Bringe does not specifically teach a heating step at 75°C but lower than 160°C under acidic conditions, but takes the position that this would have been obvious because the reference discloses the heat treatment of a soybean protein solution containing greater than 40% by weight of β -conglycinin at 72°C or 90°C **after acidic treatment**, and further teaches the heat treatment of a soy protein solution containing greater than 40% by weight of β -conglycinin at 70°C (72°C) or 90°C results in a protein solubility of 96% and 95%, respectively.

However, this does not mean that the art-skilled would have found it obvious to heat the soybean protein having a high β -conglycinin content under acidic conditions (pH 4.5 in Bringe) at 72°C or 90°C instead of the 45°C temperature actually disclosed in Bringe. The 96% and 95% protein solubility (NSI%) in Table 4 of Bringe et al., specifically referred to by the Examiner, are the results achieved for heating at 72°C and 90°C **after adjusting the pH to 7.2** as indicated above. This would not motivate the art-skilled to heat at 72°C or 90°C **under acidic conditions**. The treatment under acidic conditions has already been conducted, at 45°C, before the treatment at 72°C or 90°C at pH 7.2. There is no disclosure in the reference which would suggest heat treatment at 72°C or 90°C, instead of 45°C, after precipitation at pH 4.5; nor is there any suggestion in the reference which would lead the art-skilled to treat the soybean protein at 72°C or 90°C after pH adjustment to acidic conditions instead of the disclosed adjustment to pH 7.2. The Examiner's rationale for the "motivation to do so" is simply stating what Bringe discloses, i.e. that heat treatment of a soy protein solution containing greater than 40% by weight of β -conglycinin at 72°C or 90°C, **which occurs after pH adjustment to 7.2 (not acidic conditions)**, results in a protein solubility of 96% and 95%, respectively. This does not constitute any motivation to **change** what Bringe discloses, by conducting the heat treatment at 72°C or 90°C **under acidic conditions**.

As mentioned previously by Applicants, in view of remarkably high viscosity of protein rich in β -conglycinin, the present invention is directed to lowering such high viscosity by lowering the solubility of the protein. However, as seen from Table 4 in column 26 of Bringe, the solubility after heating is 95-96%. This means that the solubility of protein having a high β -conglycinin content is not lowered by the heat treatment of Bringe. Further, Table 1 of the present specification also shows that the


solubility of protein having a high β -conglycinin content is not lowered by warming (65°C) under acidic conditions, or by heating (85-140°C) in a neutral region. There is absolutely no suggestion in Bringe which would lead the art-skilled to expect that the solubility of protein having a high β -conglycinin content can be lowered by heating at higher than 75°C but lower than 160°C under acidic conditions, as required in the present invention.

For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the Bringe reference.

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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